

REMARKS

Claims 3, 5 and 6 are pending in the present application. Claims 3 and 6 have been amended and claim 11 has been added. Claim 3 has been amended to further clarify the aluminum content in the alloy. Claim 6 has been amended to delete the term "preferably". Support for the amendment to claim 3 and for newly added claim 11 can be found, for example, in the specification at page 2, lines 21-22, page 5, lines 14-17, and page 7, lines 28-29.

Claims 4 and 7-10 are withdrawn from the application. Applicants explicitly reserve the right to file a divisional application with originally filed claims 4 and 7-10.

35 U.S.C. § 103 REJECTIONS

Claims 3 and 6 stand rejected under 35 U.S.C. § 103(a) for obviousness over U.S. Patent No. 5,407,493 to Yamauchi et al. ("hereinafter Yamauchi").

Amended independent claim 3 is directed to an austenitic stainless steel that is less susceptible to cracking during forming. The composition includes approximately 0-0.04 mass % carbon, 0.1-1.0 mass % Si, 0-5.0 mass % Mn, 0-0.0060 mass % S, greater than 0 mass % and up to 0.003 mass % Al, 5.0-9.0 mass % Ni, 15.0-20.0 mass % Cr, 0-0.035 mass % N, 1.0-5.0 mass % Cu with the balance being Fe and inevitable impurities. The composition includes non-metallic MnO-SiO₂-Al₂O₃ inclusions with not less than approximately 15 mass % of SiO₂ and not more than approximately 40 mass % of Al₂O₃ dispersed in its matrix.

Yamauchi discloses a fracture-resistant stainless steel sheet for use as a substrate of inner diameter saw blades. The steel includes non-metallic inclusions of Al₂O₃, MnO and SiO₂ which inevitably exist in stainless steels.

The Examiner states that the claims 3 and 6 are obvious for the reasons set forth in paragraphs 1-5 of the Office Action. Applicants respectfully disagree. With respect to independent claim 3, Yamauchi does not teach or suggest a copper content of 1.0-5.0 mass %. Yamauchi teaches a copper content of 0.08-0.90 wt. %. Moreover, Yamauchi teaches specifically limiting the copper content to 0.08-0.9 wt. % to specifically avoid degradation of the hot workability of the steel. The copper content in amended independent claim 3 of 1.0-5.0 mass % achieves softening and formability of the stainless steel, which is not taught or suggested by Yamauchi.

Additionally, Yamauchi fails to teach or suggest an austenitic stainless steel as claimed in amended independent claim 3. Yamauchi teaches a metastable austenitic sheet that includes a structure having 40-90% martensite. The stainless steel structure of amended independent claim 3 is that of austenite. Therefore, for all of the foregoing reasons, reconsideration of the rejection to amended independent claim 3 is respectfully requested.

With respect to dependent claim 6, Yamauchi does not teach or suggest an austenitic stainless steel composition as claimed in dependent claim 6. The examples of steel compositions in Table 1 (A-H) of Yamauchi fail to meet the limitations of $d \leq 0$ and $a > 0$. While the claimed composition may have some overlapping composition ranges with Yamauchi, Yamauchi fails to teach or suggest a composition that satisfies $d \leq 0$ and $a > 0$ for the equations identified in claim 6.

Additionally, claim 6 depends from and adds further limitations to amended independent claim 3 and is deemed to be patentable for the reasons discussed above with respect to amended independent claim 3. Therefore, for all the above reasons, reconsideration of the rejection of claim 6 is respectfully requested.

Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) for obviousness over Yamauchi in view of JP Pub. No. 09-263905 to Katsuhisa et al. (hereinafter "Katsuhisa").

Yamauchi has been discussed above. Katsuhisa discloses a Ni low reduction type inexpensive soft austenitic stainless steel. The steel has improved elasticity and can be used for building materials where surface crack generation during hot rolling is suppressed.

Claims 5 and 6 depend from and add further limitations to amended independent claim 3 and, therefore, are believed allowable for substantially the same reasons discussed above with respect to claim 3. Additionally, Katsuhisa does not teach or suggest an austenitic stainless steel having greater than 0 to 0.003 mass % aluminum as in amended independent claim 3 from which claim 5 depends. Katsuhisa does not teach or suggest the presence of any aluminum addition in its steel composition. Furthermore, Katsuhisa fails to teach or suggest a stainless steel having non-metallic $\text{MnO-SiO}_2\text{-Al}_2\text{O}_3$ inclusions with not less than approximately 15 mass % of SiO_2 and not more than approximately 40 mass % of Al_2O_3 dispersed in its matrix. Katsuhisa further fails to teach or suggest controlling the non-metallic inclusions to provide a stainless steel that is less susceptible to cracking during forming, as in amended independent claim 3.

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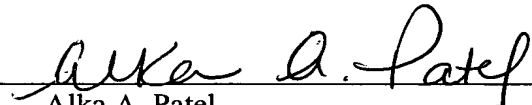
While Yamauchi does disclose the presence of Al, there would be no motivation to combine the teachings of Katsuhisa with Yamauchi. Katsuhisa is directed to a soft austenitic stainless steel with high-elasticity. Yamauchi is directed to a fracture-resistant alloy for use as a blade for cutting ingots. Additionally, while Katsuhisa does disclose a copper content of 1-5.0, Yamauchi specifically teaches limiting copper to 0.08 to 0.90 wt. % to avoid degradation of the hot workability of the steel. Therefore, for all of the foregoing reasons, Applicants respectfully request reconsideration of the rejections of claims 5 and 6.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that pending claims 3, 5, 6, and 11 distinguish over the prior art of record and are in condition for allowance. Reconsideration of the Examiner's rejections and allowance of the pending claims are respectfully requested.

Respectfully submitted,

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